

### **REMARKS/ARGUMENTS**

Claims 1-16 are pending in the present application. Claims 1-7 have been examined and are rejected by the Examiner. Claims 8-16 are withdrawn from consideration by the Examiner as being directed to non-elected inventions.

In this response, applicants have amended claims 1 and 7 to more clearly recite their invention. In addition, claims 2-5 are canceled without prejudice or disclaimer in light of the amendments to claim 1. The amendments to claims 1 and 7 are all entirely supported by the application as originally filed and thus they raise no issue of new matter.

Furthermore, applicants have amended the title of the application in the manner suggested by the Examiner. In addition, the Brief Description of the Figures has been amended on p. 9 to add Sequence Identification Nos. for Figs. 2 and 8 as required. The specification has additionally been amended at page 20 to disable the embedded hyperlinks. Still further, the Abstract of the disclosure has been amended to correct what the Examiner characterizes as “improper English”. No new matter is added by these amendments and their entry is, thus, respectfully requested.

Upon entry of this Amendment into the file of the application, claims 1, 6-7 and 8-16, as amended, will be pending in the application.

### **Objections to the Specification**

On p. 2 of the Office Action, the Examiner objects to the Abstract of the Disclosure as allegedly containing “improper English”. Based on the Examiner’s comments, however, applicants believe that the Examiner has reviewed the Abstract set forth at p. 60 of their as-filed specification and that the Examiner, thus, did not consider the (replacement) Abstract submitted with the Preliminary Amendment filed with this application on April 27, 2005. The replacement Abstract is believed to be of record in this application pursuant to the entry of the April 27<sup>th</sup> Preliminary Amendment.

Nevertheless, upon reviewing the text of the replacement Abstract, i.e., submitted with the Preliminary Amendment, applicants note that it does contain some language similar to that found objectionable by the Examiner in the original Abstract. Applicants have, therefore, amended the replacement Abstract, as shown above, in the manner suggested by the Examiner. The amendment is believed to overcome the Examiner’s objection as set forth in the Office

Action. The Examiner is, thus, respectfully requested to reconsider and withdraw the objection to applicants' Abstract.

A "clean copy" of the replacement Abstract, as amended, is attached at the end of this response.

The Office Action additionally states at p. 3 that the title of the invention is not descriptive and that a new title is required that is clearly indicative of the invention to which the claims are directed. Applicants have, accordingly, amended the title of their application pursuant to the Examiner's suggestion at page 3 of the Office Action.

The Office Action additionally notes, at p. 3, that the specification fails to comply with 37 CFR 1.821 – 1.825 because there are two nucleotide sequences (representing tRNA molecules in figure 2) and a polypeptide sequence (comprising 424 amino acids in figure 8) that are not assigned SEQ ID Nos.

In response, applicants have amended the Brief Description of the Drawings on page 9 of the specification to add Sequence ID Nos. for the sequences shown in Figs. 2 and 8. With regard to figure 2, two new sequence identification numbers have been added, i.e., nos. 33-34. As to figure 8, however, applicants respectfully submit to the Examiner that the sequence shown in the subject figure is identical to the sequence already provided as SEQ ID NO:29, notwithstanding that the sequence in figure 8 is given in a **one-letter code**, whereas that provided in SEQ ID NO:29 is set forth in **three-letter code**. For this reason, therefore, and to avoid duplication of the sequences, applicants have amended the brief description of figure 8 such that the sequence set forth in the subject figure is now identified as SEQ ID NO:29. A replacement sequence listing including new sequence Nos. 33 & 34 is provided herewith. Applicants thus are enclosing herewith, as required, a paper copy of the revised Sequence Listing in compliance with the requirements of 37 C.F.R. 1.821, a computer diskette containing a copy of the Sequence Listing in computer readable form and a Statement in Accordance with 37 C.F.R. 1.821(f).

The above-described amendments and the submission of a replacement sequence listing are believed to overcome all of the Examiner's grounds for objection to the specification, which should therefore be withdrawn.

### **Objections to the Claims**

Claim 1 is objected to for grammatical reasons as set forth on page 3 of the Office Action. In response to the objection, the preamble of claim 1 has been amended to read as, “An expression method for non-naturally-occurring amino acid-containing proteins comprising:” (emphasis supplied).

Furthermore, claim 7 is objected to due to the reference contained therein to “any of the methods according to claim 1”. The subject claim has, thus, been amended to address, “the method according to claim 1”.

The above amendments are completely supported by the application as originally filed and thus they raise no issue of new matter. The Examiner is, therefore, respectfully requested to reconsider and withdraw the objections to the claims based on the subject amendments thereto.

### **Claim Rejections Under 35 U.S.C. 112**

Claim 4 is rejected under 35 USC 112, second paragraph, for the reasons set forth at page 4 of the Office Action. Claim 4 has been cancelled, however, without prejudice or disclaimer and such cancellation is believed to render moot the rejection of that claim under §112.

Claims 1-7 are rejected under 35 U.S.C. 112, first paragraph, as allegedly failing to comply with the ‘written description’ requirement of §112. The bases in support of this rejection are set forth at pp. 4-6 of the Office Action. Further to the above, moreover, claims 1-7 are additionally rejected under 35 U.S.C. 112 due to an alleged failure to meet the enablement requirement of the statute. The bases supporting this additional ground of rejection are set forth at pps. 6-8 of the Office Action. These rejections are respectfully traversed.

In response to the rejections noted above, claim 1 has been amended to additionally include subject matter previously recited in original claims 3 and 4, as well as sequence information of TyrRS. As amended, therefore, claim 1 and claims 6 & 7 depending therefrom, are believed to meet both the written description and enablement requirements of 35 U.S.C. 112, first paragraph. That is, the subject matter now contained in applicants’ remaining claims is believed to be described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the application was filed, had possession of the invention as now claimed. Furthermore, applicants’ specification is believed to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make

and/or use the invention commensurate with claim 1, 6 & 7, as amended, that upon entry of this response will be pending in the application. The Examiner is thus respectfully requested to reconsider and withdraw the rejections of applicants' claims under 112, first paragraph.

### **Claim Rejections Under 35 U.S.C. 102**

Claims 1-7 are rejected under 35 USC 102(a) as being allegedly anticipated by Sakamoto et al., Nucleic Acids Research, Vol. 30, No. 21, p. 4692 (November 1, 2002) for the reasons set forth at pp. 9-10 of the Office Action. The rejection is respectfully traversed.

As indicated above, the effective date of the Sakamoto et al. reference, upon which the Examiner bases the §102(a) rejection, is November 1, 2002. In contrast, however, the Examiner's attention is respectfully directed to the fact that the present application claims the priority of an earlier-filed Japanese patent application (No. 2002-318846) bearing an earlier filing date than the Sakamoto et al. reference, i.e., October 31, 2002. Submitted herewith, therefore, to perfect applicants' claim to such earlier priority is a verified translation of the Japanese priority application into the English language. Applicants submit, moreover, that the present invention as recited in the amended claims of this case is completely supported by the disclosure of the earlier-filed Japanese priority application. For the reasons above, therefore, the Examiner is respectfully requested to remove Sakamoto et al. as a reference against applicants' claims and to thus reconsider and withdraw the §102(a) rejection based on the subject reference.

Further to the above, claims 1-3 and 6-7 are also rejected under 35 U.S.C. §102(a) as being allegedly anticipated by Schultz et al. (application no. 10/126,931, now issued as U.S. patent No. 7,083,970 ("Schultz")) for the reasons given at p. 10 of the Office Action. This rejection is traversed as well by applicants.

In response to the above rejection, applicants note that claims 2-3 are cancelled without prejudice or disclaimer in this Amendment and, thus, the rejection is moot as to those claims. Furthermore, claim 1 has been amended to include, *inter alia*, the recitation contained in original claim 4. Claim 4 was not included in the Novelty rejection based on Schultz, thus indicating that even the Examiner believes that the subject matter of that claim is Novel over the disclosure contained in the reference. Since claim 1, as amended, therefore, contains the Novel subject matter from claim 4, applicants respectfully submit that claim 1 is Novel as well over the subject references, as are claims 6-7 which depend from claim 1. The Examiner is, therefore,

respectfully requested to reconsider and withdraw the rejection of claims 1-3 and 6-7 over Schultz.

### **Claim Rejections Under 35 U.S.C. §103**

Claims 1-7 are rejected under 35 U.S.C. 103(a) over Kiga et al., PNAS (July 23, 2002) for the reasons given on pps. 11-12 of the Office Action. The rejection is, however, respectfully traversed by applicants.

As indicated above, claim 1 of the application has been amended to incorporate the recitations of pending claims 3 and 4, as well as the sequence information regarding TyrRS. Thus, as now amended, the subject claim recites (in sub-paragraph “B”) the expression of suppressor tRNA originating in *Bacillus stearothermophilus* capable of binding with [the] tyrosine derivatives (i.e., discussed in sub-paragraph “A”) in the presence of mutant tyrosyl tRNA synthetase. In contrast to the invention, Kiga et al. discloses the use of suppressor tRNA originating from *E. coli* in the *in vitro* translation system. The expression of suppressor tRNA, however, originating from *Bacillus stearothermophilus* in animal cells as recited in claim 1 is nowhere taught or even suggested in the subject Kiga et al. reference. Further in support of this distinction between the invention as claimed and the disclosure contained in Kiga et al., the Examiner’s attention is respectfully directed to Fig. 4A. The Figure demonstrates that suppressor tRNA originating from *E. coli*, i.e., as according to the reference, did not work for the purpose recited in applicants’ claims in animal cells. See, e.g., lane 4 with reference to the description set forth on pp. 48-50 of the present specification and, in particular, the paragraph bridging pp. 49-50.

For the reasons above, therefore, applicants respectfully request that the Examiner reconsider and withdraw the rejection under §103.

### **Summary**

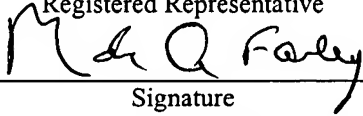
The claim amendments and remarks presented above are believed to be sufficient to overcome all of the objections and rejections to both the specification and claims of the present application. The Examiner is, therefore, respectfully requested to reconsider and withdraw the subject objections and rejections and to pass the application through to an allowance.

If the Examiner does not agree, but believes that an interview would advance the progress of this case, the Examiner is respectfully invited to telephone applicants' representative at the number below so that such an interview may be scheduled.

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on : August 14, 2007

Mark A. Farley

Name of applicant, assignee or  
Registered Representative



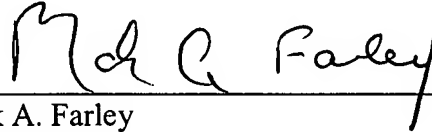
Signature

August 14, 2007

Date of Signature

MAF:jl

Respectfully submitted,



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**ABSTRACT**

A method of expressing a protein having an unnatural amino acid integrated therein comprising expressing (A) a mutant tyrosyl tRNA synthase that is derived from *Escherichia coli*-origin tyrosyl tRNA synthase and has an elevated specificity for an unnatural tyrosine derivative compared with the specificity for tyrosine, (B) a suppressor tRNA originating in an eubacterium belonging to the genus *Bacillus*, *Mycoplasma* or *Staphylococcus* which is capable of binding to the above tyrosine derivative in the presence of the above mutant TyrRS, and (C) a desired protein gene having a nonsense mutation at a desired site in animal cells to thereby incorporate the above tyrosine derivative into the nonsense mutation site in the above protein.